



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Handwritten signature

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/027,042

12/21/2001

James M. Young

24347-054 US

2218

7590

10/18/2004

JACQUES M. DULIN, ESQ.
INNOVATION LAW GROUP, LTD.
224 W. WASHINGTON ST., SUITE 201
SEQUIM, WA 98382-3338

EXAMINER

DEBERADINIS, ROBERT L

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,042

Applicant(s)

YOUNG, JAMES M.

Examiner

Robert DeBeradinis

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The reply filed 7/1/04 consists of amending claims 1, 10 and remarks related to rejection of claims. The claims are not allowable for the following reasons.

Response to Arguments

Applicant's arguments with respect to claimed invention have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over RYAN 6,250,672 in view of LUITJE 5,936,520 and YOUNG 5,871,063.

Regarding claims 1, 9, 10.

Ryan discloses a passenger safety interface between a buckle condition sensor (column 3, line 27) and a microprocessor air bag safety system controller (26) wherein the microprocessor uses the buckle condition sensor information to determine whether or not passenger seat is occupied.

Ryan does not disclose:

a current mirror circuit having first and second current paths;

a seat sensor circuit comprising a current source or resistive-type seat belt latch or belt tension sensor in said second current path and having a single lead interface to said current mirror circuit;

a current sensing circuit in said first current path, said first current in said first current path mirroring the current in said second current path;

a control microprocessor circuit responsive to the current in said first current path for controlling the activation of a passenger safety system; and

said interface circuit interfaces with both current source and resistive-type sensors, operates with low input voltage, permits use of an entire dynamic range of microprocessor analog input and interfaces with multiple safety sensors.

LUITJE discloses an analog sensor status detection single wire bus multiplex system wherein a voltage signal is supplied on the line that produces a current corresponding to the presence of a sensor at the polled interface and a current corresponding to a sensed digital or analog value where the sensor is of the digital or analog type, respectively. The currents on the bus are copied in a current mirror whose current output is applied to a resistor to produce a voltage, which in turn is converted into a digital number to be analyzed to determine the presence of a sensor at the addressed interface and its status.

YOUNG discloses a seat belt latch system, the seat belt latch condition indicating the seat belt latch state to a processor dependent on a resistance value.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the vehicle airbag restraint system disclosed by RYAN to

Art Unit: 2836

include a current mirror circuit. The motivation would be to provide a single wire interface to the microprocessor wherein the microprocessor may receive information from a plurality of sensors on the single wire.

Regarding claims 2.

RYAN in view of LUITJE and YOUNG discloses the passenger safety interface circuit as set in claim 1.

LUITJE discloses wherein said current mirror circuit includes first and second matching transistors, said first transistor included in said first current path and said second transistor included in said second current path (column 6, lines 1-4).

Claims 3, 4-8, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over RYAN 6,250,672 in view of LUITJE 5,936,520 and YOUNG 5,871,063 in further view of OLSON 6,316,933.

Regarding claim 3.

RYAN in view of LUITJE and YOUNG discloses the passenger safety interface circuit as set in claim 2.

RYAN in view of LUITJE and YOUNG is silent as to the control transistor coupled between said second matching transistor and said seatbelt latch sensor for controlling the current to said seatbelt latch sensor circuit in response to a signal from said control microprocessor circuit.

OLSON discloses simple multiplexing transistors and scan circuits are used to transmit multiple analog signals between external observation and a bus circuit (single wire).

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify the passenger safety interface circuit to include control transistors claimed above. The motivation would be to provide a means to interface a plurality of sensors to a single wire.

Regarding claim 4.

RYAN in view of LUITJE and YOUNG in further view of OLSON disclose the passenger safety interface circuit as set forth in claim 3.

LUITJE discloses mirror circuit including a first current sense resistor (12) in said first current path between the first matching transistor (inherent in mirror circuit) and ground potential, the voltage across said resistor being proportional to the current through said seatbelt latch sensor and providing the input signal to the control microprocessor circuit.

Regarding claim 5.

RYAN in view of LUITJE and YOUNG in further view of OLSON disclose the passenger safety interface circuit as set forth in claim 4.

RYAN discloses wherein said control microprocessor circuit includes outputs to control the operation of a vehicle airbag system (figure 1, modules 18, 26).

Regarding claims 6,11.

RYAN in view of LUITJE and YOUNG in further view of OLSON disclose the passenger safety interface circuit as set forth in claim 5.

The passenger safety interface circuit is silent as to including at least a second seatbelt sensor circuit in parallel connection to said first seatbelt latch sensor circuit, and at least a second control transistor coupled between said second matching transistor and said second seatbelt latch sensor circuit for controlling the current through said second seatbelt latch sensor circuit in response to a signal from said control microprocessor circuit.

LUITJE discloses an analog sensing resistor with an enabling circuit connected in parallel with an analog sensor and its enabling circuit having means to control coupling of the calibration resistor and the analog sensor to the microprocessor.

It would have been obvious to one having ordinary skill in the art at the time of this invention to have included at least a second seatbelt sensor circuit in parallel connection to said first mentioned seatbelt latch sensor circuit. The motivation would be to sense the occupancy of a plurality of passenger seats to control the deployment of a plurality of airbags.

Regarding claim 7.

RYAN in view of LUITJE and YOUNG in further view of OLSON disclose the passenger safety interface circuit as set forth in claim 6.

The passenger safety interface circuit disclosed by the above references is silent as to a first seatbelt latch sensor circuit and at least said second seatbelt latch circuit.

It would have been obvious to one having ordinary skill in the art at the time of this invention to have modified the passenger safety interface circuit to include said second seatbelt latch circuit. The motivation would be to sense the occupancy of a plurality of seats to control the deployment of a plurality of airbags.

Regarding claim 8.

RYAN in view of LUITJE and YOUNG in further view of OLSON disclose the passenger safety interface circuit as set forth in claim 7.

The above passenger safety circuit is silent as to indicating that neither seatbelt is latched, only said first seatbelt is latched, only a second seatbelt is latched, or that both seatbelts are latched.

LUITJE discloses the microprocessor is able to measure the magnitude of the current, current dependent on the sensor resistance, without distorting the current and the microprocessor controls the operation of the multiplexing bus to read each possible sensor in the system (column 2, lines 16-37).

It would have been obvious to one having ordinary skill in the art at the time of this invention to detect discrete current values generated by the seatbelt latches. The motivation would be to sense seat occupancy.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2836

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (571) 272-2049. The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Brian Sircus, can be reached on (571) 272-2058. The Fax phone number for this Group is (703) 872-9306.

RLD

OCTOBER 8, 2004

A handwritten signature in black ink, appearing to read 'Robert L. DeBeradinis', is written over a horizontal line.

ROBERT L. DEBERADINIS
PRIMARY EXAMINER